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CONTRIBUTIONS TO THE HISTOGENESIS OF THE PAPILLARY CYSTOMATA OF THE OVARY.

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It is only within the last few years that the ovarian papillomatous cystomata have been recognized as constituting a class of tumors perfectly distinct from the ordinary glandular cystomata; for previous to the year 1877 when Olshausen[13] first demonstrated this fact the two forms of growths were considered as one, or at most subdivisions of the same class of tumors, and consequently as derived from the same source. This fact must be borne in mind in considering all the early work done upon this subject. Although the ordinary ovarian cystoma had been known for a great length of time as ovarian dropsy, it was not until 1829 that Hodgkin[1] pointed out the existence of papillary growths upon the interior of the cyst. He ascribed their formation to pressure, and it will perhaps be interesting to quote his words describing the process. "I have stated that it is at particular points on the interior surface of the superior cyst that clusters of inferior cysts take their origin. It sometimes happens that the number of cysts forming the clusters is so great in proportion to the space which they occupy that, like trees too thickly planted, they interfere with each other's growth. Their development is more or less limited to an increase of dimension in length. Yet as their free extremities are allowed to diverge, we sometimes find the slender peduncle gradually dilating into a pyriform cyst. At other times the dilatation does not take place till near the extremity of the peduncle, and then produces a cyst more nearly resembling a grape or a currant. At other times no dilatation takes place, probably from the cavities having been wholly obliterated. The pedunculated cysts or the extreme of this variety in the form of filaments are either produced singly, but in the closest approximation from a particular spot of the containing cyst, or they may be attached to it by a common pedicle from which the proper pedicle of each proceeds. These elongated structures sometimes become highly vascular and in the defect of an internal secretion contribute largely to that which occupies the sac into which they project." We thus see that Hodgkin clearly directed attention to the papillary growths and regarded their origin as identical with that of the secondary cysts.

Following Hodgkin there came a period during which it was thought that all forms of ovarian tumors were derived from the Graffian follicle; and this was the prevailing idea until 1848, when Virchow[2] showed that the Graffian follicle produced only small cysts, which still contained the ovum, hydrops folliculi, and was incapable of giving rise to the large colloid tumors, for which other modes of origin must be sought. He believed that spaces lined by epithelial cells were constantly appearing in the stroma, from which the cysts were developed, and that they were therefore of connective tissue origin and totally distinct from the cysts developed from the Graffian follicle. More or less similar views as to their origin from connective tissue were advanced by many, among whom were Foerster,[3] Rokitansky[4] and Frerichs.[5] Once more the Graffian follicle theory was presented in 1864 by Klob[6] and Wilson Fox,[7] both of whom considered that all forms of ovarian cysts could be derived from them. Fox described with great accuracy the gross and microscopic appearances of both the glandular and papillary cysts; his ideas of their development were, however, erroneous; for having accurately described the gland-like structures found in the cyst wall, he considered that

they were only apparent and were due to depressions formed between villi, which sprang from the wall of the cyst. He explained the production of smaller cysts in the wall of the larger by supposing that the extremities of the villi came into apposition and then became adherent, and thus produced cavities beneath them, which might readily become larger and form small cysts. In several cases he saw structures, which he considered Graffian follicles, sending out diverticula, though in none of his cases was he able to demonstrate the presence of ova in them.

Mayweg,[8] four years later, attempted to reconcile the conflicting theories. Like Fox,[7] he supposed that the great majority of ovarian cysts were derived from Graffian follicles, but that a certain proportion had a connective tissue origin, as was believed by Virchow,[2] Rokitansky[4] and others. He not only considered the papillary cystoma to be a variety of the ordinary form; but considered the formation of papillae a constant and necessary occurrence in the formation of the multilocular cystomata. He thought that as the papillae increased in size in a small cyst, they would be subjected to increased pressure by the contained liquid, and that in this way their tips would be forced into contact and, after they had lost their epithelium by attrition, become adherent and thus form secondary cysts by a method very similar to that described by Fox.

In this connection, he gave a most interesting figure (*Fig.* 1, A, a, in Mayweg's article), in which he depicted a small papillary growth arising from the wall of a Graffian follicle, in which the ovum was still present.

During the year before and after Mayweg's[8] dissertation the papers, which prepared the way for Waldeyer's wonderful article on the subject, were written. In the year 1867, Luecke and Klebs,[9] after studying several tumors removed by Spiegelberg came to the conclusion that the growths were to be compared to the adenomata and it was impossible for them to be of connective tissue origin. In 1869, Boettcher[10] foreshadowed Waldeyer's[12] work, for in the more solid portions of a cystoma, he found "an abundance of epithelial duct-like structures, which could be seen dilating into small cysts;" these structures he compared to Pflueger's ducts and stated that the cystomata might arise from these structures or from Graffian follicles or from both. He also considered that papillomatous growths were formed by epithelial structures growing down into the stroma, and not by the stroma pushing forward the epithelium.

Up to this time there was considered to be no particular difference between the papillary and glandular tumors; indeed they were usually considered merely as different phases of growth in the same tumor. As to their histogenesis, both forms alike were supposed to be derived from the Graffian follicle or ovarian stroma or both, according to the theory prevailing at the time. Though occasionally the proofs did not appear convincing, and the writers refused to commit themselves to any theory, as, Bauchet[11] who said, "Some authors suppose they arise from the Graffian follicle, others from the ovarian stroma. It may be so; but there is absolutely no anatomical ground for the supposition." To Waldeyer[12] is due the honor of having settled the question as to the histogenesis of the ovarian cystomata and of placing the entire subject upon a sound basis. For in his epoch-making work, "Eirstock und Ei," he gave a perfectly clear description of the anatomy and development of the ovary and thus laid the foundations for scientific study of its pathology; and in his work on the epithelial ovarian tumors he clearly demonstrated that the cystomata were derived from Pflueger's ducts, which were either remnants from foetal life or newly formed in the adult. According as the cystomata contained papillary ingrowths or not, he divided them into two classes:

1. Cystoma proliferum glandulare. 2. Cystoma proliferum papillare. He did not, however, consider that there was any generic difference between the two classes of growths; the difference depending entirely upon the relative rapidity of growth of the component parts of the tumor. If the epithelium took the more active part in the growth, an adenomatous tissue resulted and a glandular cystoma was produced; if, on the other hand, the connective tissue was the actively growing part, it pushed forward the epithelium and produced papillary ingrowths from the cyst wall and gave rise to a papillary cystoma.

This was the state of affairs until 1877, when Olshausen[13] showed that the papillary cystoma differed both anatomically and clinically from the glandular form and should therefore be considered as constituting a class of growths totally independent from them. He came to this conclusion by considering the following facts: "Anatomically these tumors differ from the cystomata in that they are usually only of moderate size and never attain the huge proportions which are frequently observed in the glandular cystomata. They contain in their interior numerous papillary, cauliflower-like tumors, which often entirely fill the lumen of the smaller cysts and break through their walls, and not infrequently through the walls of the principal cyst. After breaking through the cyst wall, they usually spread to the neighboring organs and grow particularly upon the peritoneum. The interior of the cysts is usually lined by ciliated epithelium. The number of cysts making up the tumor is quite limited.

The growths are usually bilateral and in three-fourths of the cases develop extra-peritoneally, usually between the folds of the broad ligament; and lastly the fluid contents are characterized by a lack of colloid constituents. Clinically, these tumors grow far more slowly and soon give rise to pressure symptoms, owing to the fact that they are developed *extra saccum peritonei*. They are frequently accompanied by ascites, which is often of considerable amount and recurs rapidly after tapping. And lastly they form metastases, or, more properly speaking, grow by dissemination of the papillomata over the peritoneum and invade the other organs. From the fact that they grew within the folds of the broad ligament and were lined by ciliated epithelium, Olshausen concluded that their development was in some way connected with the parovarium, which was known to contain ciliated epithelium and which in some cases penetrate the hilum of the ovary as the so called medullary cords (Markstraenge) of Koelliker.[14] This view appeared quite plausible and soon gained general acceptance, and, in spite of the fact that it has since been repudiated by its originator, is still held by many writers on the subject.

Olshausen's work was soon followed by an article by Fischel,[15] who accepted Koelliker's[14] theory of the development of the ovary (that is, that only the ova are developed from the germ epithelium, and that the membrana granulosa is derived from strings of cells, of Wolffian body origin, which penetrate the hilum of the ovary), and stated "that we must consider the ciliated ovarian cystomata to be derived from parovarial elements, particularly from the granulosa cells and not from the parovarium or organ of Rosenmueller as such." He adduced no evidence to prove this point, and from the description of his specimen it is not at all clear that he had to do with an ovarian tumor at all, but rather with a

papillary cyst developing in the broad ligament; for he stated that on the upper part of the cyst the flattened out ovary was found, and that the tumor developed from the hilum. And according to his description it might have arisen just as well from the parovarium. The only point that he brought forward to prove the truth of Koelliker's hypothesis was that here and there in his specimens he found ova around which he could find no trace of a membrana granulosa, and considered that they lacked a membrana granulosa because the ingrowths from the Wolffian body had not reached up to them. Coblentz,[16] the same year, described two cases of papillary cysts of the ovary; one of which was the size of a goose egg and was covered with papillary growths; it contained small cysts, from whose walls papillary projections arose. On section, he found the ovary traversed in all directions by bands of epithelial cells, arranged more or less radially to the hilum and resembling Pflueger's ducts in appearance. Some of these structures communicated directly with the surface of the ovary but never contained ova. These bands of cells could be seen dilating into small cysts, which were lined by ciliated epithelium and contained papillary ingrowths.

A similar condition was noted in a small superficial papilloma of the ovary in another case. These structures he thought were of Wolffian body origin and corresponded to Koelliker's "Markstraenge." From his elaborate study of the subject, he concluded "that the lining of Pflueger's ducts, as well as Koelliker's "Markstraenge," is capable of functioning as a real mucous membrane, since they are both descendants of such structures; and that the starting point of the glandular cystomata is from Pflueger's ducts and that of the papillary ciliated cystomata from Koelliker's "Markstraenge," at a time before they are differentiated, the one into ova and the other into granulosa cells.

The work of Fischel[15] was confirmed by Stryczek[17] in every particular, and he stated that growths developed from parovarial elements were far more frequent than was usually supposed.

The theory of development from remains of the Wolffian body has appeared fascinating to English and American writers on the subject, and even now, when most others have forsaken the theory, they still cling to it.

Thus, Doran[18] still accepts the theory in its widest possible sense. For he regarded even very small papillary cysts in the zona parenchymatosa of the ovary and far removed from the hilum (the seat of the remains of the Wolffian body), as of Wolffian body and origin, and stated that "they must have originated from Wolffian elements in the stroma of the parenchyma of the ovary." And in speaking of a case of papillary broad ligament cyst, he said "the absence of any trace of ovary in this specimen of Mr. Thornton is strong evidence in favor of the supposition that the cyst arose in the hilus of the ovary and forced its way into the broad ligament, and on the other hand absorbed or destroyed the tissue of the parenchyma of the ovary." In his work,[19] "Tumors of the ovary, fallopian tubes and broad ligaments," he recorded a most interesting case, which he observed in the ovary of a seven months' foetus. It contained several small cysts 1-16 to 1-12 of an inch in diameter, which were lined by ciliated epithelium and filled by papillary growths; and in spite of the fact that the ovary contained no ova, while the other ovary contained them in large quantities, he concluded that they were also derived from Wolffian body elements.

The latest American writer on the subject is Howell,[20] in Mann's System of Gynæcology (1889), who accepted the same views as Doran, and stated "that other views as to their development are far from satisfactory."

We will now turn from these theories, which at present are considered by most original workers on the subject to be unfounded, and consider those which offer simpler and more rational explanations of the development of these growths.

We will first consider the theories which suppose the germinal epithelium of the ovary to be the source of origin for the papillomatous growths. The first important theory advanced in this direction was that of Marchand,[21] in 1878, who, in an able work on the subject, was able to substantiate Olshausen's statement as to the distinction between the glandular and papillary cystomata, and stated that the presence or absence of cilia in the growths made no difference in this regard. He also stated that they were developed from several points of origin, basing the statement upon a case of Olshausen's, in which the lateral half of an ovary, enlarged to the size of a walnut, was studded with small cysts, varying from a pin's point to a cherry in size, and which were lined by ciliated epithelium and were filled by papillary growths. He repudiated the theory that they were developed from the Wolffian body, and directed attention to the near relationship existing between the epithelium of the tube and that covering the surface of the ovary, and pointed out that at an early period of foetal life they are one and the same surface, and in the adult are only separated from one another by a small band of tissue at the fimbria ovarica. His theory was that in some cases the dividing line between the two forms of epithelium, instead of remaining at the end of the fimbria ovarica, might extend over the lateral portion of the ovary, and thus cover it with ciliated epithelium, from which ciliated processes analogous to Pflueger's ducts might extend into the stroma and possibly in some cases form Graffian follicles lined by ciliated epithelium, from which ciliated cysts might readily arise. Owing to the near relationship of such structures to the epithelium of the tube with its peculiar arborescent structure, it was not difficult to conceive that these cysts should have a tendency to form papillary ingrowths.

The same year, a most interesting observation of De Sinety and Melassez[22] placed the entire subject in a new light. For, on microscopic sections of what appeared to be an ordinary small cystic ovary, with dilated follicles in both its superficial and deeper portions, they were surprised to discover that the cysts were not dilated follicles at all, but were lined by a single layer of columnar epithelium, which at times was ciliated. Epithelial tubes running through the ovary in various directions were also seen. These structures were lined by columnar epithelium, which was also ciliated; and some of them were seen to open directly upon the surface of the ovary, and their epithelial lining to be continuous with the germinal epithelium of the ovary; while others were seen to communicate with smaller cysts, which were evidently formed by dilation of the above mentioned epithelial tubes. They observed this condition in two cases, and considered the structures to be analogous to Pflueger's ducts, and to have been formed in adult life. These structures they naturally considered to be the source of the papillary ciliated growths, and they certainly offered a more rational explanation of their production than the Wolffian body theory. They believed that the frequent occurrence of these cysts near the hilum was due to the increased vascularity of that part of the ovary: "note also that the most

frequent seat for vegetations is in the neighborhood of the pedicle, as if the more vascular portions of the ovary were more propitious for pathological development."

The observations of De Sinety and Melassez were soon confirmed, for the next year Flaischlen [23] published similar cases. Both of his observations were made in cases of papillary cystomata, and in each he found epithelial tubes, lined by columnar and ciliated epithelium, penetrating in all directions the intact portions of the ovary, which presented an appearance similar to that of the Pflueger's ducts, as described by Waldeyer [12] in the foetal ovary. These structures could be seen dilating into cysts, lined by columnar and ciliated epithelium, which sometimes contained papillary growths; and occasionally a direct communication between these structures and the superficial epithelium of the ovary could be demonstrated. The following year he was able to demonstrate a similar condition in another papillary cystoma, in which the surface of the intact portion of the ovary was covered by ciliated epithelium, between which and the epithelial tubes and the small cysts a distinct connection could be traced. This was certainly conclusive proof, and no one could possibly object to his conclusions: [24] "that the papillary cystomata arise from the ovary and not from the parovarium, and that they take their origin from tubes lined by columnar and ciliated epithelium, which originated from the germinal epithelium."

Indeed the observations of De Sinety and Melassez and Flaischlen were so convincing, that Olshausen,[25] in the second edition of his work "Die Krankheiten der Ovarien," in 1886, totally repudiated his original idea as to their development from the Wolffian body, and stated that he could take no exception to Flaischlen's statements.

The latest work in this connection was by Fromel (1890), who described a case of superficial papilloma of the ovary, which was clearly derived from the germinal epithelium. He also thought that the usual form of papillary cystoma might develop from the germ epithelium or from the granulosa cells of the Graffian follicle. He arrived at the latter conclusion purely by a logical process and had no preparations upon which to base his statements. He argued thus: "We know by Waldeyer's researches that the granulosa cells of the Graffian follicle are derived from the germinal epithelium; we also know from Flaischlen's observations that, under certain circumstances, the germinal epithelium may become ciliated, and investigations upon certain of the lower animals have shown that in some species both the germinal epithelium and the granulosa cells are ciliated; such being the case, why cannot the granulosa cells in man become ciliated under certain circumstances of which we are as yet ignorant? And if so, why may not papillary cystomata sometimes arise from the Graffian follicle?

According to him, the superficial papilloma is more liable to be developed when a few broad ingrowths of germinal epithelium occur at some distance apart from each other; while, if a number of ingrowths take place from a comparatively small area, the papillary cystoma is more apt to be formed. The germinal epithelium theory received a qualified support from Steffeck,[27] who thought that it might play a part in the development in some cases.

Somewhat allied to the views just mentioned, is the theory of Nagel,[28] who pointed out the fact that the germinal epithelium is frequently preserved under peritoneal adhesions about the ovary, and that the irritation caused by the inflammatory changes might lead to a proliferation of the germinal epithelium, with the formation of pseudo-Pflueger's ducts and the development from them of all forms of ovarian tumors. The proof adduced in support of these observations is not at all convincing.

In this connection we might also refer to the case of superficial papilloma of the ovary, reported by Gusserow and Eberth,[29] whose development they stated was dependent upon inflammatory changes and probably upon an oöphoritis. But in view of what has been said above, such a theory is absolutely without foundation.

Having considered all other possible sources of development, we will now consider those theories which take the Graffian follicle as the point of development for these growths. As I pointed out in the first part of the article, this was one of the earliest theories concerning the origin of all forms of ovarian tumors, and one which always received more or less support, except for a short time after the appearance of the work of Waldeyer and Olshausen, when it was almost completely lost sight of. In this connection it is only necessary to recall the fact that Fox,[7] Klob,[6] Mayweg,[8] Spiegelberg [30] and Boettcher [10] accepted the Graffian follicle as the origin of most, if not all, cysts of the ovary; and that Mayweg and Fox considered the formation of papillary processes from the wall of the follicle to be the first step toward the formation of multilocular cystomata. The idea that ciliated papillary cysts might be derived from ciliated Graffian follicles was advanced by Marchand [21] and Frommel,[26] from purely theoretical considerations; but they had no specimens to prove that the Graffian follicle in man could ever become ciliated, and much less give rise to papillary growths.

Another recent believer in the Graffian follicle origin of the papillomata, was Koeberle;[31] but, like Marchand and Fromel, he possessed no accurate observations upon which to base his statements.

The most recent work on the subject has tended, however, to bear out the theoretical deductions of Marchand and Frommel, as will be seen from the consideration of the recent work of Von Velits and Steffeck.

Von Velits,[32] in 1889, wrote a most interesting article on the histology and genesis of the ciliated papillary cystomata, basing his work upon the consideration of nine cases. In two cases, in relatively intact portions of the ovary, he found small cysts, apparently dilated follicles, which were lined by a single layer of cylindrical epithelium, which in some cases was ciliated; and in one instance he was fortunate enough to find an ovum in one of them, which abundantly proved that the theories of Marchand [20] and Fromel [26] were correct, and that it was possible for the human Graffian follicle to become ciliated.

As none of these small cysts communicated with the germinal epithelium, he considered them all Graffian follicles, and stated that it was from them that the papillomata were developed. In none of them, however, was he able to demonstrate papillary growths, and consequently absolute proof of the correctness of his assertions was still lacking. He, however, considered the presence of Psammon bodies to be absolutely pathognomonic of ciliated papillary cystomata, and, as he found them in the neighborhood of the ciliated Graffian follicles, he considered his position positively proved.

The very latest work published on the subject of the ovarian tumors was by Steffeck,[27] 1890, who once more reverted to the old view that the glandular cystomata might arise from the Graffian follicle. He came to this conclusion on finding Graf-

fian follicles, which still contained ova, undergoing proliferative changes and sending out offshoots into the surrounding tissue, from which daughter cysts were developed. He sustained his position by drawings, which, if correct, prove his point. He did not consider the follicle the only source of origin, but stated that they might be developed equally as well from Pflueger's ducts; and that if either of these structures became ciliated, they might give rise to the ciliated papillary cystoma. He stated the case as follows: "Primarily, neither the germinal epithelium nor follicular epithelium is ciliated; but at any time either epithelium may be converted into high cylindrical epithelium. If, now, under certain circumstances, an 'irritation' be given, which will cause cylindrical epithelium to become ciliated, nothing could be more natural than for this 'irritation' to affect the cylindrical follicular epithelium, as well as the cylindrical germinal epithelium; and consequently both forms of epithelium could take part in the production of the ciliated papillary cystomata."

In the preceding pages I have endeavored to trace the history of the several theories advanced in connection with the development of these growths; and from their variety, it will readily be seen that a definite conclusion has not yet been reached. Indeed, the number of theories advanced has been limited only by the number of structures entering into the composition of the ovary. Thus, before the time of Waldeyer, we had the connective tissue and Graffian follicle theories; and after the work of Pflueger and Waldeyer added the Pflueger's ducts and germinal epithelium to the component parts of the ovary, the limits of possibility were extended, and we had these structures utilized as sources of origin. When to this we add Noeggerath's[33] theory of the development of the cystomata from the blood-vessels, we see that every tissue entering into the formation of the ovary has been laid hold upon and made the basis of one or more theories. As if these were not theories enough, others have sought in the parovarium or Wolffian body the possible source of these growths.

I now desire to record several interesting cases, which I hope will throw more light upon the subject of the histogenesis of the papillary ovarian cystomata and enable me to show that several of the theories, instead of contradicting one another, are based upon accurate observations and are entitled to consideration.

CASE I.—*"Adherent tubes and ovaries," peri-salpingo-oöphoritis, small papillary cyst in mesosalpinx, and ciliated structures of tubal origin in the ovarian stroma.*

Mrs. V., March 26, 1890, both tubes and ovaries removed by Dr. Kelly for chronic salpingo-oöphoritis; recovery. The structures removed presented the usual appearance in such cases; both tubes and ovaries being covered by thin adhesions and more or less bound together. The ovaries presented numerous dropsical follicles and the tubes a moderate degree of catarrhal salpingitis. The left tube and ovary were adherent, particularly at their lateral ends, where the fimbriated extremity of the tube was densely adherent to the ovary. Just at this point, apparently on the surface of the ovary, was a small cyst 5 mm. in diameter, with clear contents; which was apparently a dilated follicle.

On cutting sections through this cyst and the adjoining portions of the tube and ovary, one obtained the appearance represented in *Fig.* 1. It was then seen that the cyst did not arise from the ovary at all, but was situated in the mesosalpinx, surrounded by a thin layer of non-striated longitudinal muscular fibres. From the inner wall of the cyst arose several small papillary projections, three of which are represented in the drawing. All of them possessed a framework composed of spindle-shaped connective tissue cells, are well supplied with blood-vessels, and are covered with a single layer of high columnar ciliated epithelium, with large oval nuclei. In the lower portion of the figure is seen ovarian tissue, which contains primitive Graffian follicles (*Fig.* 1, *a*).

The ovary and mesosalpinx were densely adherent for the greater part; but in a part of their extent, where they were not adherent, a double line of epithelium was seen, which varied from flat to columnar in shape, and represented the original germinal epithelium and the peritoneal surface of the mesosalpinx (*Fig.* 1, *b*). At the lower left hand corner of the drawing (*Fig.* 1, *c*), is seen a portion of the fimbriated extremity of the tube, which is densely adherent to the ovary and covered by high columnar ciliated epithelium. The most interesting feature of the specimen and the one to which I desire to direct particular attention, is the occurrence of larger or smaller spaces, lined by high columnar ciliated epithelium and imbedded in the stroma of the ovary just adjacent to the fimbriated extremity (*Fig.* 1, *d*). These structures are quite numerous and vary considerably in size, from very small circular structures to larger structures with an irregular outline. They are all lined by high columnar ciliated epithelium, similar to that seen on the fimbriated end of the tube, and apparently represent sections made through epithelial ducts in various directions. Their origin was not, at first sight, apparent; but on cutting serial sections it could be seen that several of them were directly continuous with the epithelium covering the adherent fimbriated extremity of the tube, from which they were clearly outgrowths.

As represented in the drawing (*Fig.* 1, *d*), they were not confined to the stroma of the ovary, but were also found between the muscular layers of the mesosalpinx. Whether the small cyst above referred to was derived from such a structure I am unable to state absolutely; for I have seen similar cysts in the mesosalpinx in cases in which there was no suspicion of such epithelial growths as those mentioned. This point, however, is a matter of indifference; for whatever may be the origin of the cyst in the mesosalpinx, there can be no doubt as to the presence of these epithelial structures in the ovary and their origin from the tubal epithelium. This observation, as far as I am able to discover, is unique, and tends in a limited way to substantiate Marchand's[21] theory of the origin of papillary cysts from ingrowths of ciliated epithelium, which were derived from that of the tube by Nature's failure to establish at the end of the fimbria ovarica the usual division line between the non-ciliated germinal epithelium and the ciliated epithelium of the tube.

The difference between Marchand's theory and my observation is, that in his case, the presence of ciliated epithelium on the ovary was a congenital defect; while in my case it occurred in adult life and probably was the result of disease.

I will refrain from any theoretical attempts to explain the cause of this proliferation of the tubal epithelium, and will be content with the mere statement of the fact.

In this case we have structures lined by columnar ciliated epithelium, of tubal origin in the stroma of the ovary; and we might readily conceive that in some instances papillary ciliated cysts might develop from them. This mode of origin is closely related to that supposed by Marchand and clearly indicates that his theory is not beyond the limits of possibility.

CASE II.—*Superficial Papilloma of the Ovary; Hydrosalpinx, with peculiar cystic formation in the tube, small corpus luteum cyst and adhesions about tube and ovary.*

Mrs. H., laparotomy by Dr. Kelly, October 15, 1890. Both ovaries and tubes removed; recovery. Description of specimens: Right side—Tube measures 6 cm. in length, 0.3 at narrowest part and 0.9 cm. at thickest part, fimbriated extremity free; the tube appears normal. Ovary measures 4, 3, 1½ cm. in its several diameters; is covered by thin adhesions, with many cicatrices on its surface. On section, one sees at its median extremity, near its upper border, a corpus luteum cyst 1 cm. in diameter and adjoining it a dilated follicle. On the superior surface of the tube are numerous small clear cysts, ½ to 2 mm. in diameter, and below the tube the enlarged parovarium. Left side—The tube was represented by a hydrosalpinx, which was ruptured during the operation. Its fimbriated end was closed and its uterine end firmly adherent to the ovary.

Left ovary measures 4, 2, 1.5 cm. in its various diameters; and its surface covered with numerous adhesions and cicatrices. At its lateral end and adherent to the end of the tube is a mass of small cysts 1.5 cm. in diameter, apparently a beginning cystoma. On the superior surface of the ovary, about its middle, is a papillary mushroom-like mass, triangular in shape, and 1 cm. in diameter and 3 mm. thick, which arises from the ovary by a pedicle about 2 mm. long and the same in diameter. The surface of the mass is marked by numerous fine lines, indicating depressions into its interior.

Sections through the apparently cystic formation at the end of the ovary show that it consists of a twisted mass of epithelial structures, which is connected with the lumen of the tube. The tube and ovary were adherent, and between them and lining the interior of some of the adhesions is well-preserved germinal epithelium. Remains of the Wolffian body were seen in the mesosalpinx.

The point of interest for us in this very interesting specimen, is the superficial papilloma of the ovary, which, as far as I can learn, is the ninth case on record[16, 21, 26, 29, 34, 35, 36]. Sections through the papillomatous mass and the subjacent portions of the ovary (*Fig.* 2) reveal most interesting conditions. The growth had a distinctly mushroom-like shape and was composed principally of spindle-shaped cells, exactly similar to those found in the ovary, with which they were continuous through the pedicle; its blood supply was very scanty. Its most interesting feature was that it was penetrated in all directions by epithelial structures, varying in shape from simple cylindrical canals to broad, flat depressions, some of which extended through almost its entire thickness, and all of which were lined by a single layer of ciliated cylindrical epithelium (*Fig.* 2, *a*). All these epithelial structures could readily be traced to the surface of the growth, where the broad, flat depressions were seen to correspond to the lines mentioned in the macroscopic description. The ciliated epithelium lining them extended up to the surface of the papilloma, from which the epithelium unfortunately had been rubbed off, but which I suppose was similar to and continuous with the epithelial lining of these structures.

The pedicle presented the same structure as the growth itself, and was perforated by numerous epithelial structures, lined by ciliated epithelium. It also contained a typical Psammon body (*Fig.* 2, *b*). The subjacent ovarian tissue contained no ova, but was perforated in several places by epithelial structures similar to those found in the papillomatous mass (*Fig.* 2, *c*). It also contained Psammon bodies (*Fig.* 2, *d*).

The germinal epithelium was absent from the greater part of the surface of the ovary and was only preserved in one or two protected portions (*Fig.* 2, *e*), when it was found to be represented by a single layer of tolerably high, columnar, ciliated epithelial cells, which were of the same appearance as those lining the epithelial structures in the papillomatous mass and the ovary. This condition of the germinal epithelium present, indicated that the entire epithelial covering of the ovary had been of the same character, and made it most probable that the surface of the papilloma had also been covered by ciliated epithelium.

The ciliated condition of the germinal epithelium is most interesting, and is similar to that reported by Flaischlen in another case. It also proves conclusively that under some circumstances the germinal epithelium may become ciliated, without supposing any connection to exist between it and the epithelium of the tube, as Marchand did. The appearance of the growth and the ciliated condition of the epithelium is conclusive proof that it was in some way formed by ingrowths of the germinal epithelium into the stroma of the ovary; and most probably, as described by Frommel[26] in a similar case, by broad, flat processes of epithelial cells extending down into the stroma of the ovary and almost cutting out a portion of it, which, as it grew, was raised above the surface of the germinal epithelium and thus made to appear as a superficial growth. Moreover, the presence of spaces lined by ciliated epithelium in the stroma of the ovary is analogous to those described by De Sinety and Melassez,[22] and Flaischlen,[24] and it is most probable that papillary growths would have sprung from their walls as they increased in size, and thus have given rise to a papillary cystoma.

This observation cannot be considered ambiguous in any sense, and the only possible conclusion which can be drawn from it is, that under certain circumstances the germinal epithelium may become ciliated and give rise to papillary growths, of both varieties, as stated by De Sinety and Mellassez,[22] Flaischlen,[24] and Frommel.[26]

This is certainly a rational explanation for many cases, and it is more than probable that the epithelial structures described by Coblentz[16] in several of his cases, were derived from the germinal epithelium instead of the Wolffian body.

CASE III.—*Beginning Papilloma of the Ovary; acute purulent salpingitis.*

K. K., aged 27 years; laparotomy, November 1, 1890, by Dr. Kelly; recovery. Ovaries and tubes of both sides removed. Description of specimens: Left side—Tube measures 10 cm. in length, 0.5 at uterine and 1-5 cm. at fimbriated end; fimbriated extremity free. The tube is filled with bloody pus, and its outer half is of a dark red color, owing to the intense congestion. The mesosalpinx is apparently normal. The ovary is very flattened out and measures 5, 3 and ½ cm. in its various diameters; on its surface are numerous thin adhesions, and on section it is soft and presents numerous follicles with haemorrhagic walls. Microscopic sections of the tube show that it is intensely inflamed, with its vessels engorged and its lumen filled with pus. Its outer half is so intensely congested that the folds of the mucous membrane are almost entirely filled with blood. On its peritoneal surface is seen a fresh fibrinous exudate. Cultures from the pus demonstrate the presence of numerous colonies of the staphylococcus aureus. Sections of the left ovary show numerous ripe and dilated follicles, with hæmorrhage into them and also into the stroma. Right side—The tube measures 6 cm. in length, 0.4 at uterine and

Fig. I.

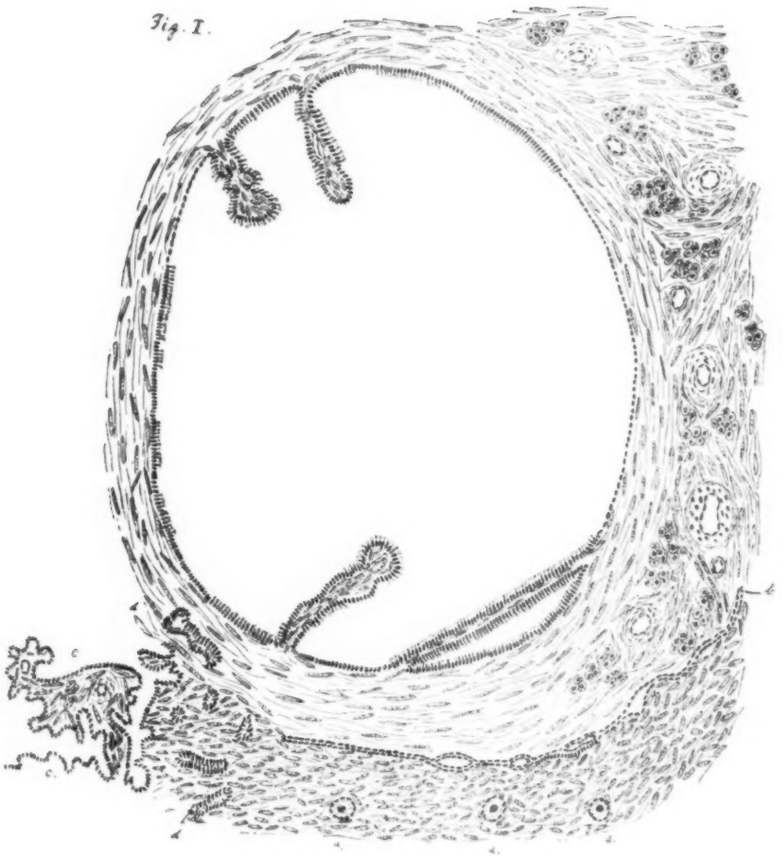


Fig. II.

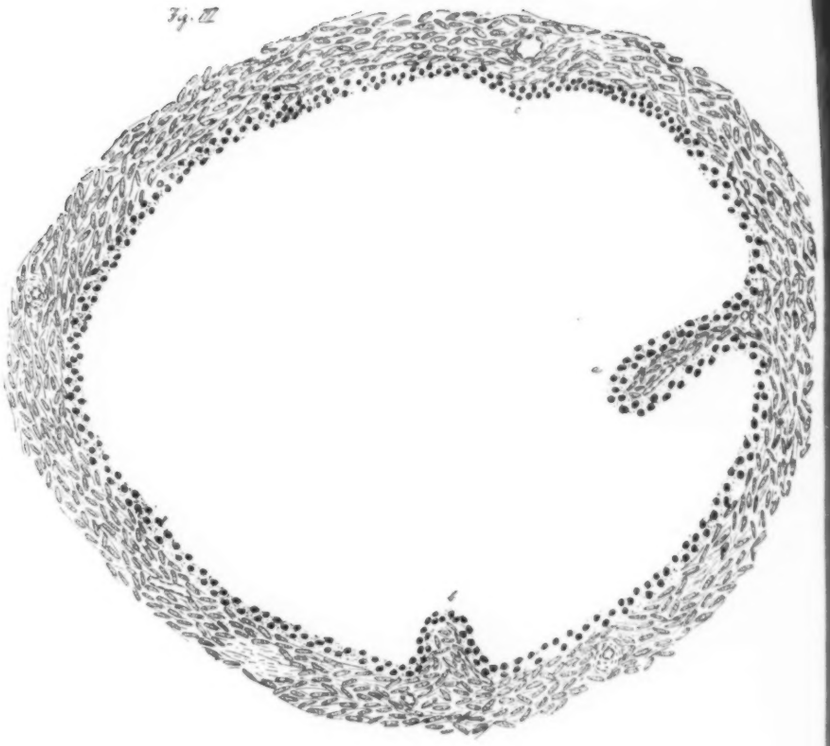


Fig. III.

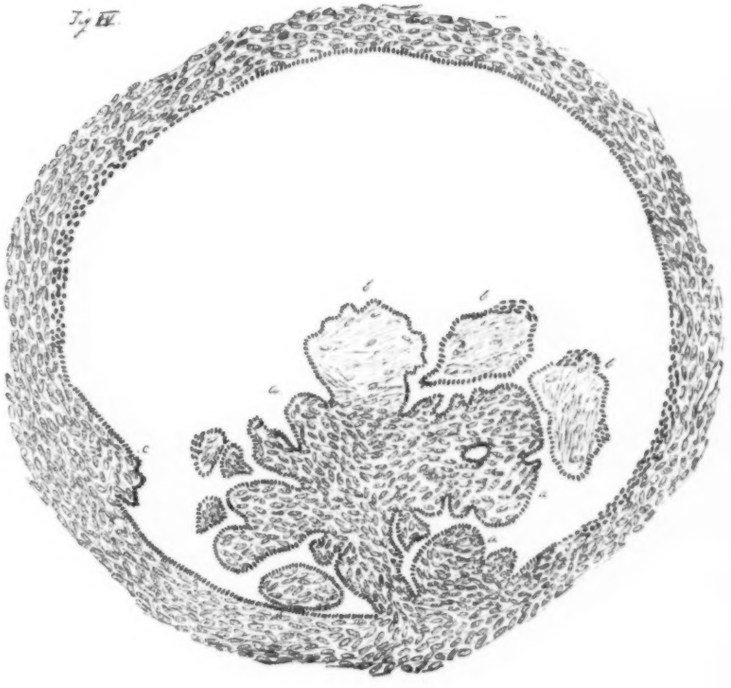
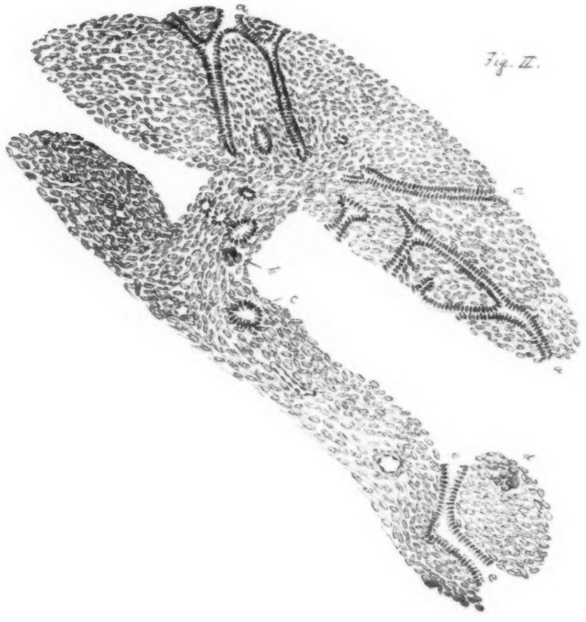


Fig. IV.



1.5 cm. at the fimbriated extremity; the fimbriated extremity is occluded and somewhat adherent to ovary.

The ovary is small, measuring 3, 2 and 1½ cm. in its various diameters; its surface presents numerous cicatrices and is covered by thin adhesions. A longitudinal section through the ovary shows the portion about the hilum filled with large thick-walled vessels; while the zona parenchymatosa contains many dropsical follicles, many of which have very irregular outlines. The most interesting condition for us in this specimen is a Graffian follicle, which presents marked evidence of beginning papillary formation. This is a dilated follicle about 4 mm. in diameter, and situated near the superior surface of the ovary, and filled with clear liquid.

On section (*Fig.* 3), it presented the typical appearance of a dilated follicle, having a typical membrana granulosa, which was composed of several layers of cuboidal epithelial cells, with large clear nuclei and surrounded by the spindle cells of the ovarian stroma.

From one point of its inner wall a club-shaped process about 1 mm. long projected into its interior (*Fig.* 3, *a*). This process was covered by the many layered membrana granulosa cells, and its framework composed of spindle cells and blood vessels, which were continuous with those of the surrounding stroma. A short distance from this, a similar but smaller process was also noted (*Fig.* 3, *b*), and at a third point, a slight elevation indicated the beginning of a similar process (*Fig.* 3, *c*).

All of these structures were covered by several layers of epithelial cells, similar to and continuous with those lining the rest of the follicle, and their framework was composed of the spindle-shaped stroma cell, containing vessels. These projections were evidently produced by ingrowths of the ovarian stroma toward the interior of the follicle, which simply pushed before them the membrana granulosa, which still covered them.

I consider that this specimen represents the very earliest stage in the development of the ovarian papillomata and clearly demonstrates that they may be developed from the Graafian follicle.

In spite of the fact that I was unable to demonstrate an ovum within the follicle, I believe that there can be no question as to its identity. For it is only necessary to look at the epithelium lining it to recognize in it the typical membrana granulosa; and a comparison of this follicle with others which still contain ova places the question beyond all doubt.

The specimen just described does not, however, place the histogenesis of the papillomata beyond all doubt; for it would be impossible to state *a priori* that these simple outgrowths could give rise to the complicated forms of the developed growth. But my next observation will demonstrate that this is the case and will thoroughly establish this mode of origin for the papillomata.

CASE IV.—*Peri-salpingo-oöphoritis, hydrosalpinx and Beginning Papilloma of the Ovary.*

E. R., both tubes and ovaries removed by Dr. Kelly, October 2, 1890. Description of specimens: Right side—The tube and ovary are represented by a ragged mass of tissue, in which it is impossible to distinguish the component parts. Left side—The tube is converted into a hydrosalpinx, which measures 10 cm. in length, 0.5 at the thinnest, and 2.5 cm. at the thickest part. It is wound around the ovary and filled with clear, transparent liquid. The fimbriated end is occluded and its site indicated by a stellate arrangement of depressed lines; its surface is smooth and glistening with a few thin adhesions. Scrapings from its walls show that it was lined by ciliated cylindrical epithelium, the cilia having been seen in motion. Cultures from its contents show no growth of micro-organisms.

The left ovary measures 4, 2.5, and 1.5 cm. in its various diameters. Many adhesions bind it firmly to the tube. At its distal end is a freshly-ruptured corpus luteum; it contains numerous dilated follicles; one particularly, situated on its anterior surface near its lateral end, is quite large, measuring 7 mm. in diameter and filled with clear fluid. Sections through this follicle reveal a most interesting condition, for we find a papillomatous mass 3 mm. in diameter, growing from its internal wall. This mass (*Fig.* 4, *a*) presents the typical arborescent appearance of a well-developed papillary growth, and a single glance is sufficient to demonstrate its relationship to the ordinary papillomata of the ovary. It is seen to spring from the wall of the follicle by a well-marked pedicle, through which its stroma becomes continuous with that of the rest of the ovary, as is well represented in the drawing. Most of its framework is composed of tissues identical with that of the ovarian stroma and very rich in spindle cells; though in some of its more outlying portions the tissue appears almost hyaline and contains very few cells (*Fig.* 4, *b*). The growth is covered by a single layer of polymorphous epithelial cells, most of which are cylindrical in shape and contain large oval nuclei, which occupy a great part of the cell and lie equidistant from its margin.

The lining of the follicle itself is also very interesting, for it presents all possible forms of epithelium and clearly demonstrates that one form may readily change to another; for in this case we find the typical cuboidal membrane granulosa cells arranged in several layers; then well-marked cylindrical and, lastly, flattened epithelial cells arranged in a single layer and following one another in close succession. The follicle is surrounded by typical ovarian stroma. Beside the well-marked papillary growth, we have indications at another point (*Fig.* 4, *c*) of more rudimentary papillary formation, similar to that noted in Case III. On none of the epithelial cells, either those covering the growth or those lining the follicle, was I able to demonstrate cilia. Their absence, however, is completely a matter of indifference, as I will show later.

That we have to do with a Graffian follicle in this case is clearly proved by the fact that in several places we found its interior lined by the typical membrana granulosa cells, in spite of the fact that I was unable to demonstrate an ovum within it.

I believe that no one who has carefully considered the facts brought forward in the last two cases, can have any reasonable doubt that papillary cysts of the ovary may in some cases arise from the Graffian follicle; and it is only necessary for a similar change to take place in several Graffian follicles in order to produce a typical multilocular papillary cystoma. As both of these cases occurred on or near the surface of the ovary, and as neither of them showed any signs of possessing cilia, I am aware that the statement, that papillary cysts of the ovary may be derived from the Graffian follicle, is open to two objections, and that it might be said that such a mode of origin is perhaps applicable to the simple non-ciliated papillary cystomata, which are not supposed to invade the folds of the broad ligament, but that it cannot possibly apply to those growths which lie within the folds of the broad ligament and are lined by ciliated epithelium. These objections are well taken, and I shall now proceed to prove that they are unfounded and that the ciliated intra-ligamentous papillary cystomata can also be derived from the Graffian follicle. In order to prove the correctness of this assertion, it will be neces-

sary to prove that the Graffian follicle may under certain circumstances become lined by ciliated epithelium and grow between the folds of the broad ligament. And I am happy to say that I am able to prove both of these statements by my own observations.

In the first place I will consider the possibility of growths derived from a Graffian follicle growing within the folds of the broad ligament. In this connection we must be far more careful in distinguishing between intra-ligamentous cysts, which are developed from the ovary, and those of other origin. Heretofore, sufficient stress has not been laid upon this point, and I am sure that many cases described as intra-ligamentous ovarian cysts were not ovarian at all, but were derived from the parovarium and affected the ovary merely by pressure, as in the cases of Doran and Fischel, which I referred to in considering their work. For in several cases I have seen perfectly well marked papillary cysts developed within the folds of the broad ligament, which had absolutely no connection with the ovary, and which, when they had attained a greater size, might have readily flattened it out or caused it to atrophy.

I also desire to call attention to the fact that Olshausen's[13, 15] statement, that the great majority of papillary ovarian cysts are developed within the folds of the broad ligaments, is greatly exaggerated and will sustain my position by Doran's figures. He found 9 cases developed within the folds of the broad ligament and 4 cases without it, which possessed regularly formed pedicles. Now, when we take into account the fact that he certainly reckoned among his intra-ligamentous ovarian tumors, several of other origin, it will be evident that considerably less than one-half of his cases were developed within the broad ligament. This accords with my own experience, for I have lately seen three cases, none of which were intra-ligamentous.

Having thus shown that the intra-ligamentous development of these growths is less common than is generally supposed, it now becomes necessary to ascertain whether it is possible for a cyst developed from a Graffian follicle to grow within the folds of the broad ligament. Theoretically, there is no possible objection to an enlarged Graffian follicle, situated near the hilum, growing down in the direction of least resistance between the layers of the broad ligament. But, practically, as far as I can learn, there is no undoubted case on record in which such a mode of growth has been observed.

I have been fortunate enough to have observed such a case, which I will record in this connection.

Case V.—*Miliary Tuberculosis of the Fallopian Tube; Intra-ligamentous Hydrops Folliculi.*

Mrs. C., both ovaries and tubes removed by Dr. Kelly, February 21, 1891; recovery. Description of specimens: Right side—was so mutilated that examination was impossible. Left side—the specimen consists of the tube, ovary and a clear transparent cyst in the broad ligament. The tube measures 7 cm. in length, 0.5 at thinnest, and 1 cm. at thickest part; the fimbriated end is occluded and the tube covered with numerous adhesions.

The tube appears to lie in a depression between the intact portion of the ovary and the clear intra-ligamentous cyst beneath it; the peritoneal covering of the tube spreads out over the cyst, which is therefore intra-ligamentous. A portion of the ovary, measuring 4, 3 and 2 cm. in its various diameters, is pressed above the cyst, and presents numerous follicles and adhesions, while its lower margin appears to be continuous with the cyst wall. The cyst is 5 cm. in diameter, with thin, almost transparent walls, and is situated between the folds of the broad ligament. Extending across the anterior and inferior surface of the cyst is the thinned-out parovarium, which is about 8 cm. in length. The cyst contains a clear yellow fluid, containing many whitish particles in suspension, which under the microscope are seen to be very fatty compound granular bodies.

The cyst is unilocular, of a glistening white color interiorly, with numerous ecchymotic patches. Scrapings show it to be lined by cuboidal and roundish epithelial cells, with large vesicular nuclei; many of the cells are fatty.

Microscopic sections of the tube show most exquisite miliary tuberculosis of the mucous membrane, in which the tubercle bacilli were demonstrated in small numbers. Sections through the wall of the cyst show it to be a typical hydrops folliculi; for it is lined by cuboidal epithelical cells, with large nuclei, which are arranged in several layers over the greater part of the interior of the cyst; though here and there they are arranged in only a single layer.

This case, as far as I can learn, is unique, and proves absolutely that growths developed from the Graffian follicles may invade the broad ligament; and teaches us that all tumors within the folds of the broad ligament are not of Wolffian body origin.

Having thus proved that a Graffian follicle growth may become intra-ligamentous, it only remains necessary to prove that under certain circumstances its epithelium may become ciliated in order to fulfil all the requirements necessary for the development of the ciliated papillary intra-ligamentous cystomata from the Graffian follicle.

Fortunately, I am also able to confirm from my own experience the observation of Von Velits, that the epithelial lining of the Graffian follicle may be ciliated.

The investigations of Leod,[37] Leydig,[39] and Nussbaum[38] on the ovaries of the lower animals, showed that the granulosa cells of the frog and others of the lower animals were always ciliated during the period of "heat;" and the theoretical deductions of Marchand and Flaischlen prepared the way for the discovery of cilia in the Graffian follicles in man.

Over a year ago, in a case of small cystic ovaries, I found several of the dilated follicles lined by ciliated epithelium. This was soon followed by several others, some three or four cases in all. In one instance, the ovary contained at least five or six follicles in which cilia in motion were demonstrated. Unfortunately, these observations were made at a period in which I did not keep accurate records of my work, so that I am unable to give all the minutiæ concerning the specimens.

About the same period, but little independently of one another, Von Velits made similar observations, and was fortunate enough in several cases to obtain sections of Graffian follicles in which ova were still visible. The follicles were lined by a single layer of cylindrical ciliated epithelium, of which he gave excellent drawings.

These observations prove beyond all doubt that not only the simple papillary cysts may develop from the Graffian follicles, but also the ciliated papillomata and even the ciliated intra-ligamentous papillomata. For, in the third and fourth cases, we proved that the non-ciliated papillomata might, in some cases, develop from the Graffian follicle; and in the last two observations, that under certain circumstances the Graffian follicle might become ciliated and even grow within the folds of the broad ligament. Now, we have only to suppose the papillary formation, going on in Cases III and IV, to occur in a Graffian follicle with a

ciliated membrana granulosa, in order to have a ciliated papillary cystoma developed; and if the follicle should happen to grow within the folds of the broad ligament, as in Case V, we would have a ciliated intra-ligamentous papillary cyst produced.

In view of these observations, I feel no hesitancy in concluding with Marchand that there is no generic difference between the ciliated and non-ciliated papillary cystomata, for their origin is the same, namely, from the Graffian follicle.

I desire to call attention to the fallacy of supposing that the sand body, "psammon-koerperchen," is pathognomonic of the papillary cystomata, as has been stated by Flaischlen,[23] Von Velits[32] and others; for in several cases which I have examined they were entirely absent from the growth. And the fact, long since demonstrated by Virchow,[40] that similar growths occur in the brain and other organs, completely robs their presence of any significance whatever.

It was upon their presence near the ciliated Graffian follicles, that Von Velits[32] based his statement that these follicles represented the earliest stage in the development of the papillary cystomata, even though they exhibited no trace of papillary growths. In view of these facts it can not be considered that Von Velits demonstrated the development of the papillary cystomata from the Graffian follicle, as he claimed; and therefore it is believed that the first proof of this mode of development is presented in this article.

In conclusion, I will sum up the results of my work, and in so doing will not commit myself to any single theory of development to the exclusion of all others; for I believe that they may be developed from one of several sources; and it is not impossible that different portions of the same growth may have developed from different structures, though I am unable to state positively that this is ever the case.

As the result of my observations, I would almost entirely reject the Wolffian body theory and consider the growths to be purely ovarian. The papillary ovarian cystomata may be derived from the following sources:

1. The Graffian follicle. This is probably the usual point of origin for the development of these growths; and according as the membrana granulosa is ciliated or not, so the growth will be of the ciliated or non-ciliated variety; and according as the affected follicles grow within the folds of the broad ligament or not, so the growth will be intra-ligamentous or not.

2. The germinal epithelium. This is the most frequent and perhaps the only source of origin for the superficial papilloma, and probably is frequently the starting point for the usual form of the multilocular papillary cystomata.

3. The tubal epithelium. From a consideration of the conditions in Case I, it is probable that some cases are developed from ingrowths of the epithelium of the tube into the stroma of the ovary. This mode of origin is, however, not yet absolutely proven.

These conclusions tend to prove that the work of all the later investigators in this direction, except those who accepted the Wolffian body theory of development, has been accurate and of real scientific value; but no one observer seems to have met with all of the different forms of development presented in this article.

LITERATURE.

1. *Hodgkin*, On the anatomical character of some adventitious structures. Medico-Chirurg. Trans., vol. XV., 1829.
2. *Virchow*, (a) Das Eierstocks Colloid. Verh. d. Ges. f. Geburtshülfe in Berlin. Bd. III, p. 203, 1848.
   (b) Die krankhafte Geschwülste. Bd. I, p. 258.
3. *Förster*, Spec. path. Anat. Leipsig, 1854.
4. *Rokitansky*, (a) Ueber die Kyste. Denkschriften d. k. Akad. d. Wüzu Wien, 1849.
   (b) Ueber Uterindrüsenneubildung in Uterus und Ovarialsarkomen. Zeitsch. d. Ges. d. Aer. in Wien, 1849, 1.
   (c) Pathologische Anatomie. 1861, Bd. III, p. 423.
5. *Frerichs*, Ueber Gallert und Colloidgeschwülste. Göttinger Studien, 1847, Abtheil. I, p. 1.
6. *Klob*, Path. Anat. d. weibl. Sexualorgane, 1864, p. 352.
7. *Wilson Fox*, Cystic tumors of the Ovary. Medico-Chirurg. Trans., vol. 47, p. 227.
8. *Mayweg, W.*, Die Entwickelungsgeschichte der Cystengeschwülste des Eierstockes. Diss. Ing. Bonn, 1868.
9. *Lücke and Klebs*, Beiträge zur Ovariotomie und zur Kenntniss der abdominalen Tumoren. Virchow's Archiv. Bd. XLI, p. 5.
10. *Böttcher*, Beobachtungen über die Entwickelung multiloculären Eierstockstumoren. Virchow's Archiv, Bd. XLIX, p. 297.
11. *Bauchet*, Anatomie pathologique des kystes de l'ovaire. Memoires de l'academie de med, Tome 23, p. 126, 1859.
12. *Waldeyer*, (a) Eierstock und Ei. Leipzig, 1870.
   (b) Die epithelialen Eierstocksgeschwülste, inbesondere die Kystome. Archiv. f. Gyn., Bd. I, p. 252.
13. *Olshausen*, Die Krankheiten der Ovarien. I Auf., 1877.
14. *Kölliker*, Entwickelungsgeschichte.
15. *Fischel*, Ueber parovarial Cysten und parovarielle Kystomen. Archiv f. Gyn., Bd. XV, p. 198.
16. *Coblentz*, (a) Das Ovarialpapillom in path. anat. und histogenetischer Beziehung. Virchow's Archiv, Bd. LXXXII, p. 278.
   (b) Zur Genese und Entwickelung von Kystomen im Bereich der inneren weibl. Sexualorgane. Virchow's Archiv, Bd. LXXXIV, p. 26.
17. *Stryczek*, Ueber die Entwickelung intraligamentärer Tumoren in kleinem Becken. Diss. Ing. Greifswald, 1889.
18. *Doran*, Papillary cysts of the Ovary. Trans. Path. Soc., London, vol. XXXIII, p. 207.
19. *Doran*, Tumors of the Ovary, Fallopian tubes, and broad ligament, 1884, p. 62.
20. *Howell, Stephen Y.*, Mann's System of Gynæcology, vol. II, p. 968.
21. *Marchand*, Beiträge zur Kenntniss der Ovarientumorem. Halle, 1879.
22. *DeSinety and Melasses*, Sur la structure, l'origine et le developement des kystes des ovaires. Archiv de Physiol, 1878.
23. *Flaischlen*, Zur Lehre von der Entwickelung der papillären Kystomen. Zeitschrift f. Gyn., Bd. VI, p. 231.
24. *Flaischlen*, Zur Pathologie des Ovariums. Zeitsch. f. Gyn., Bd. VII, p. 434.
25. *Olshausen*, Die Krankheiten der Ovarien. II Auf., p. 347.
26. *Frommel*, Das Oberflächenpapillom des Eierstocks, seine Histogenese und seine Stellung zum papillären Flimmerepithelkystome. Zeitschrift f. Gyn., Bd. XIX, p. 44.
27. *Steffeck*, Zur Entstehung der epithelialen Eierstocksgeschwülste. Zeitschrift f. Gyn., Bd. XXXIII, p. 236.
28. *Nagel*, Beitrag zur Genese der epithelialen Eierstocksgeschwülste. Archiv f. Gyn., Bd. XXXIII, p. 1.
29. *Gusserow and Eberth*, Grosse fibröse Papillome beider Ovarien. Virchow's Archiv, Bd. XLIII, p. 14.
30. *Spiegelberg*, Ein Beitrag zur Anatomie und Pathologie der Eierstockscysten. Monätsschrift f. Geburtshülfe, Bd. XIV, p. 101.
31. *Koeberle*, Des malades des ovaires. Nouveau dict. de med. et de chirurgie, 1878, Tome 25, p. 508.
32. *Von Velits*, Beiträge zur Histologie und Genese der Flimmerpapillärkystomen des Eierstocks. Zeitsch. f. Gyn., Bd. XVII, p. 232.
33. *Nöggerath*, American Journal of Obstetrics, January, 1880.
34. *Prochaska*, Disquisitio anatomico-physiologica organismi, Viennæ, 1812, p. 170, Tab. V.
35. *Klebs*, Handbuch der path. Anat. Berlin, 1873, 9 f. Lief, p. 794.
36. *Bitsch-Hirchfeld*, Lehrbuch der path. Anat. II Auf. 1885. Bd. II, p. 758.
37. *Leod*, Arch. de Biologie. Gand. T. 1, 1880.
38. *Nussbaum*, Archiv f. mikroscopische Anatomie. 1881, Heft 1.
39. *Leydig*, Die in Deutschland lebenden Saurier. Tübingen, 1872, s. 131.
40. *Virchow*, Psammona, Die krankhaften Geschwülste. Bd. 2, 106.

A CASE OF CONGENITAL DEFORMITY.

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In the gynecological dispensary service of the Johns Hopkins Hospital the following case of a congenital deformity, attributed to maternal impression, appeared:

Rosa H., aet. 21, married two years, sterile, presented herself on June, 23, 1891.

She presents a congenital deformity of both arms. On the right side the shoulder is remarkably well developed and the same is true of the arm for one-half the normal length. It then abruptly terminates, and joined to it is an insignificant forearm. The right scapula is rather smaller than normal. The elbow joint possesses rotary motion and can be moved antero-posteriorally or laterally with almost equal ease.

The skin over the posterior margin of the acromial process has a very marked indentation. The arm can be raised from the body only to an angle of 60°.

There is good antero-posterior movement at the articulation corresponding to the wrist. The measurements are as follows: Length of humerus, six inches; circumference of arm at axilla, twelve inches; circumference of arm just above elbow, ten and one-fourth inches; length of radius, three and one-fourth inches; length of ulna, three inches; circumference of upper portion of forearm, five inches; circumference of lower portion of forearm, four and five-eights inches. The internal condyle of the humerus is very prominent: the external is absent.

The radius articulates with a bone corresponding to a metacarpal, two inches in length, and the ulna with a similar bone two and one-half inches in length, the latter having a marked outward bowing.

The internal metacarpal is surmounted by a rudimentary phalangeal bone which terminates in a claw.

The external metacarpal articulates with a phalangeal bone three-fourths of an inch in length and possessing a well-developed nail.

The distal ends of the phalanges are connected by a bridge of bone. Adherent to the outside of the hand is a pendulous ball of tissue about the size of a cherry. The entire length of the arm is twelve inches. On the left side there is perfect motion in the shoulder joint, absolutely none at the elbow, and good movement in the wrist and three finger joints.

Distance from acromial process to a point corresponding to the elbow, ten inches; circumference of arm at axilla, twelve inches; circumference of arm at elbow, eight inches.

Forearm is five inches in length; circumference of upper portion of forearm, eight inches; circumference of lower portion, five and one-half inches. Corresponding to the carpus is a bone one and one-half inches long and one and one-half inches wide at the base.

Internal metacarpal is two inches long; middle metacarpal, two and one-half inches; external metacarpal, two inches.

She has three fingers. The first is crooked, has two phalanges, and is two inches long; the second has three phalanges and is three and one-half inches long; the third has three phalanges and is three inches long.

Circumference at the base of the fingers, six inches; the entire length of the extremity, twenty-two inches. Corresponding to the internal condyle of the humerus is a small, though well-defined, projection of bone.

There is no joint at the elbow and the humerus is continuous with a flat bone, which corresponds to the radius and ulna, and which is probably the result of a coalescence of the two bones.

There is an outward bowing of the whole extremity.

Having seen this deformity, the wonder is that she can accomplish so much; yet with her two wretched substitutes for upper extremities she can write, scrub, iron clothes, make her own dresses and perform other things equally surprising. At present she is engaged in the delicate task of making a bridal trousseau for one of her friends.

The father and mother are perfectly healthy and neither possess any deformity, except the father who has become stoop-shouldered from bending while at work.

She has five sisters and six brothers, all of whom were without any visible deformity.

The mother attributes her child's condition to this:

About twenty-two years ago she, the mother, owned a number of cows and was in the habit of purchasing "slop" for the animals from a man, who, at one time, had sustained an injury to the right arm, which injury necessitated an amputation about midway between the shoulder and elbow.

During the third month of her pregnancy this man went to her to collect some money due him, and in order to receive it he extended the stump, which she had never noticed before. The sight of the maimed limb frightened her, and at the time she involuntarily placed her hands upon his shoulders. She thought about it frequently after that and "felt very sorry for the poor fellow."

Although most of the present authorities are opposed to the theory that the mother can by any mental impression affect her child in utero, they have not been able to offer any satisfactory explanation of these peculiar deformities.

Some abnormalities can be properly attributed to physical causes, as blows or falls upon the abdomen, directly affecting the growth of the embryo. Unconscious muscular action has been advanced as a possible cause.

Rudimentary developments of arms or legs are often due to the presence of amniotic bands, which constrict the parts, retard their growth, and occasionally result in their complete amputation. In corroboration of this amputated members have been found loose in the uterine cavity.

Loops in the umbilical cord by a gradual strangulation of a part are said to be productive of the same result.

That the present deformity was not due to any constricting force is quite evident from the fact that there is complete absence of a number of bones on both sides.

If it had been due to constriction there would have been rudimentary development of, but not a deficiency in, the number of bones as in this case.

Inherited disease, as syphilis, is an occasional factor in the formation of abnormalities. A diseased condition of the uterus or its contained membranes, the presence of growths in the cavity or walls of the uterus, or on the other hand a deficiency of liquor amnii or impaired development of the uterus itself are all considered as possible and likely causes of congenital deformity.

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PROCEEDINGS OF SOCIETIES.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Meeting of October 5th, 1891.

Dr. OSLER in the chair. 36 members present.

Dr. HALSTED was elected President for the ensuing year. Dr. ROBB was elected Secretary.

Exhibition of Cases.—Dr. HALSTED.

CASE I.—*Osteo-plastic operations for the obliteration of a very large involucral cavity.*

John McCarthy, æt. 56, was admitted to the Hospital, July 7th, 1891. About two years ago he sustained a severe bruise of the left leg. A month later there developed in the typical way an acute osteo-myelitis of the left tibia. Within three months of the onset of the attack the pus had made its way through the soft parts in several places. In the course of the following nine months several small pieces of bone escaped through the openings in the skin. Thereafter and for about one year the patient was able to work and to walk, and was quite free from pain.

About four months ago he was again seized with pain in the left leg. An abscess formed rapidly in the upper end of the tibia and perforated the skin at a new point about 8 cm. below the knee joint.

Operation.—July 10th, 1891. An incision to the bone was made from just below the knee joint to just above the ankle joint. The anterior wall of the unusually thick and eburnated involucrum was chiseled away. The sequestrum had been almost completely absorbed. The involucral cavity was so very large and its wall so hard that the chances for the organization of a blood-clot seemed to be very few. I decided, accordingly, to attempt an osteo-plastic operation. The involucrum was split longitudinally from its lower end to within about 5 cm. of its upper end. From the ends of the longitudinal cut in the bone transverse cuts were made from without inwards through the involucrum. A bone flap about 18 cm. long and 4.5 cm. wide, and still adherent to its periosteum, was thus defined. Having beveled the outer edge of this flap and the contiguous edge of the involucrum, the flap was without difficulty folded out so that the edges of its slightly concave surface rested on the almost plane surface of the involucrum. The apposed surfaces were then planed with the chisel and the bone flap was held in place by a few stitches. The wound was then allowed to fill with blood.

The dead space in the shaft of the bone was greatly diminished in size, although not completely obliterated. In the head of the tibia the dead space was still a very large one.

September 25th. The plastic operation was a success. The bone flap certainly served its purpose, for the involucral cavity is obliterated as high as the top of the bone flap. But above this point—from the top of the bone flap to within about 2 cm. of the knee joint—there is a cavity large enough to receive a lemon, lined by low and feeble granulations.

Second operation.—September 26th, 1891. The cavity in the head of the tibia was almost completely obliterated by the turning in of two short bone flaps—one from the outer and one from the inner side.

[November 20th, 1891. The second operation was also a successful one There is firm union between the bone flaps and the wall of the cavity, but. there is still a very narrow crevice between the flaps which the granulations are too feeble to obliterate. A third operation will, therefore, be necessary. This is a case which certainly could not have been cured by the blood-clot method alone.]

The dense bony wall of the cavity was not able to furnish granulations vigorous enough to supply even the small clot which occupied the narrow crevice between the two small bone flaps in the head of the tibia, and has not in two months contributed much towards the obliteration of this little space.

I am quite sure that we shall by this method be able to obliterate easily many of the large and old involucral cavities which might be intractable to other methods of treatment. The cosmetic effect of the osteo-plastic operations just described is, as you see, exceedingly good. The tibia has been restored very nearly to its natural proportions. It has neither the greatly disfiguring, boat-shape which characterizes the much employed inverting method (Neuber's Einstülpungsmethode) nor the great size which attends the employment of the blood-clot, decalcified bone and similar methods.

CASE II.—*Plastic operation for the obliteration of a large cavity in the lower end of the femur.*

W. L. Coddington, æt. 30, was admitted to the Hospital September 15th, 1891. Twenty years ago, and shortly after a fall upon the right knee, the patient suffered from an acute, circumscribed osteo-myelitis of the lower end of the right femur. The pus quickly made its way through the skin a little above the inner condyle of the femur. A year later a small piece of bone was discharged through this opening in the skin. Fifteen years ago the skin on the outer side of the thigh a little above the knee joint was perforated and through this second opening several pieces of bone escaped. The patient has within the past two or three years been twice operated upon by well known surgeons. On admission the lower end of the right femur is much enlarged. The soft parts above the joint are thick and hard and perforated in three places, in front, above the internal condyle and above the external condyle. Through each of the openings the probe enters the cavity in the lower end of the femur.

Operation.—September 17th, 1891. A long anterior, longitudinal incision through the common extensor muscle and an internal, longitudinal incision were made. Through these incisions the front and inner walls of the cavity were so cut away that the soft parts could fall into the cavity and almost obliterate the dead space. The bony wall was cleaned with a spoon and freshened with a gouge and the walls of the three sinuses were excised. The dead spaces of the wound were allowed to fill with blood. The wound was covered with gutta-percha tissue and dressed as usual.

The wound, as you may see, has healed in the typical way. In this case as in the preceding one the bony wall of the cavity was very hard and unable to furnish vigorous granulations. Two surgeons, as I have said, operated upon the case without success. It seemed inadvisable therefore to repeat their work. An unsuccessful surgical operation upon such a cavity is an injurious surgical interference. For to each scraping the bony wall responds with a feebler crop of granulations. A plastic operation of some sort was clearly a necessity in this case; and the plan of treatment which we adopted promises to be a satisfactory one.

CASE III.—*A suppurating, compound, comminuted fracture into the ankle joint treated without drainage.*

William Clark, æt. 16, was admitted to the Hospital September 29th, 1891. A day or two before admission, while attempting to board a freight train, he slipped and caught his left foot, he does not know how, in the gear of the car and sustained a compound fracture of both malleoli. On admission the boy was suffering greatly. His temperature was 39.4° C., his pulse 132. The left foot, ankle and leg were much swollen. There was an angry blush about the ankle which extended downwards to the toes and upwards to the middle of the leg. Over the inner malleolus was a transverse wound about 6 cm. long through which projected the lower inner edge of the shaft (the upper fragment) of the broken tibia. Both malleoli were broken square off. There was some comminution of the inner malleolus and of the lower end of the tibia. The joint was suppurating.

Operation.—The ankle joint was fully exposed by the usual external lateral incision. Through this incision the cartilage was sawed off from the tibia, the astragalus exsected and the cartilage chiseled away from upper surface of the os calcis. A longitudinal incision into the joint was then made from the inner side. Through this incision the fragments of the internal malleolus and of the tibia were extruded. A few additional longitudinal incisions were made through the tissues which were particularly tense. Then a slow but vigorous massage was practiced for some minutes to relieve the tissues of the great tension which existed. I was surprised at the rapidity with which the serum escaped through the cuts and at the amount of the transudate. In a few minutes the swelling of the foot, leg and ankle was dissipated. Had it not been for these long and numerous cuts we should have been obliged to remove the Esmarch bandage before practicing the massage. The propriety of exercising massage in such a case without the Esmarch bandage might be questioned. The Esmarch was removed temporarily to enable us to ligate the larger vessels. It was then replaced for the final disinfection of the wound: the leg was placed in a

bath of corrosive sublimate (1–1000) for about three minutes, and then in a bath of carbolic acid (1–20) for about three minutes. No stitches were taken. The wounds were covered with gutta percha tissue and the dressing applied before the Esmarch bandage was removed.

The patient's temperature declined rapidly to the normal point. He has not had an unfavorable symptom since the operation.

The wound is dressed to-night for the first time since the operation. You will observe that there is no redness nor swelling of the limb.

The blood-clots are more or less completely organized. The clot which fills the ankle joint is breaking down on the surface; but in a week or ten days the granulations will everywhere be even with the surface. This method of treating such cases is surely preferable to that which stuffs the dead spaces with gauze or drainage tubes. I would emphasize the following points in the treatment of cases like this one:

1. Excise cartilaginous surfaces and thus avoid having dead walls for dead spaces.

2. Make free anti-tension incisions to relieve tension and to enable one to practice massage protected by the Esmarch bandage.

3. Remove the Esmarch bandage temporarily to ligate the principal vessels.

4. Use as few and as fine ligatures as possible. Avoid tight and unnecessary stitches.

5. Disinfect the limb, protected by the Esmarch bandage, just before applying the dressing.

6. Apply the dressing before the final removal of the Esmarch bandage.

Congenital Deformity.—Dr. STAVELY.

[See page 158.]

Two Cases of Pernicious Malaria.—Dr. OSLER.

Death due directly to malarial poisoning is now so uncommon in this region that the following cases are worthy of record. The first illustrates the algide form, and the great value of a careful blood examination in the diagnosis. In the other case the history of a sun-stroke and the occurrence of pulmonary symptoms threw us off our guard, and the case was regarded as one of low pneumonia. A more careful and systematic examination of the blood would, no doubt, have led us to a correct diagnosis.

J. H., age 34, admitted September 10th. I saw him in the dispensary at 1.30 p. m. He was very weak and tremulous, with eyes congested and cheeks flushed, and with a dazed, stupid appearance. The tongue was swollen, heavily furred and indented. He looked like a man who had been drinking, and I told his brother that it would be impossible for us to admit him to the wards in his present state. He assured me, however, that he had not been drinking to excess, and on ascertaining that there was not the slightest trace of alcoholic odor in the breath, I signed the order for his admission.

The following history was obtained. Family and personal history good. The patient is a sailor by occupation, and has enjoyed excellent health; he left Boston for Savannah five weeks ago; spent a week in the latter place, and as the weather was oppressive he, with several of his shipmates, was in the habit of sleeping upon the grass all night. He remained well on the voyage to Baltimore, where he landed August 31st. He was about the house all week, not feeling quite himself, but the present illness dates from Sunday the 7th, when, without any chill or fever, he began to have vomiting. He felt extremely weak and prostrated, so that he could not get up on Monday morning. Throughout Monday and Tuesday the vomiting continued at intervals and he was completely prostrated. He had no chills, but on Monday and Tuesday he took some quinine pills. In the dispensary, after failing to detect any alcoholic odor in his breath, and on learning that he had recently come from the South, the blood was at once examined; large numbers of Laveran's organisms were found, which rendered the diagnosis clear. His temperature on admission in the ward was 101°; pulse 104, small; tension not increased; radials not stiff. The abdomen was soft; nowhere tender. The edge of spleen was just palpable on deep inspiration; upper border of dullness at the ninth rib.

Apex beat of heart in 5th interspace within nipple line; sounds clear; examination of the lungs negative.

Blood.—Small intra-corpuscular forms in extraordinary abundance, often 6 or 8, to be seen in the field of the $\frac{1}{12}$ im. The majority of them are not pigmented and undergo very rapid changes in outline. The pigmented forms have the granules more concentrated than is usual in this stage of the evolution of the parasites. An unusual number of the leucocytes presented pigment granules.

11th. Very bad night; much vomiting; temperature sank to 98.6° at 10 a. m, and to 98.2° by 8 a. m. At the morning visit the patient looked depressed; tongue heavily furred; pulse 80, small and thready; respirations 20. Has no headache and complains chiefly of profound weakness. At noon the temperature began to rise and at 4 p. m. reached 102.2°, and for 6 or 8 hours remained about 102°, gradually falling through the early morning hours and at 8 a. m. reaching 98.5°. The blood condition remains practically the same.

12th. 10 a. m. Patient passed a better night. The vomiting has stopped but the tongue is still furred; no increase in the splenic dullness. The bowels have been freely opened. He still looks depressed and dull, and complains of a feeling of great prostration.

13th. Temperature has been about 98° for the past 24 hours, pulse 72, small. The vomiting has not been so distressing, and he has taken the milk and brandy better than on any day since admission. The blood examination shows a marked diminution in the number of corpuscles containing the plasmodia, doubtless under the influence of the quinine.

14th. Temperature has been subnormal, not rising above 97.5° all day. The vomiting has returned, and for the first time it contained blood, not in large amount, but sufficient to color the fluid. His mind is perfectly clear, and his sole complaint is of the extreme depression.

15th. 10 a. m. Patient's condition is worse since 8 p. m. last evening. The temperature has been below 97°, and at 12, midnight, sank to 96°; pulse 64, respirations 20. Tongue still swollen, heavily furred and indented. Note on the blood to-day is: "plasmodia very much diminished in number. Leucocytes still show much pigmentation." The urine is amber colored, specific gravity 1010; acid, and contained a slight amount of albumen. At 9 p. m. I made the following note: patient is in a very peculiar condition; is drowsy, dull, roused with difficulty, and does not answer clearly. He has behaved oddly all day, and has been very restless. There has been very little vomiting; temperature has been subnormal, and is now 96.5°. For the first time the tongue is distinctly dry.

16th. Through the night the patient was very restless and had much hiccough; was not delirious, but acted queerly. The temperature sank through the night, and at 2 a. m. was 96°; at 4 a. m. the thermometer could not be made to register more than 95°, and remained at this point until 10 a. m. The vomited matter last night contained flakes of blood enough to tinge the whole fluid. He had retention of urine, and this morning 1500 cc. were withdrawn, which showed a narrow ring of albumen and contained hyaline and granular tube-casts. The nurse says that he does not understand questions, but he seemed to recognize me, and gave fairly rational answers, but complained of great oppression in the abdomen. The pulse is 72, and considering his condition the volume and tension were remarkably good. At 6 p. m. I made the following note: temperature has risen through the day and is now 97.2°. The tongue is dry, pulse 96, regular and of very fair volume. He is extremely restless, and his face has a dusky hue; the respirations are at times gasping, 24 to the minute. He answers questions, but talks and rambles in an incoherent way. To-day very few red blood corpuscles have been found containing plasmodia; the leucocytes are still much pigmented. Patient became much more restless, threw himself about on the bed, then became unconscious, and died at 8 o'clock. The treatment consisted of half-drachm doses of quinine every six hours, which was given hypodermically when the vomiting became excessive.

Autopsy 5 hours after death.

Body well nourished; peritoneum here and there dark and slaty in color. No pleural adhesions; pericardium normal. The heart shows no special changes. The lungs are crepitant anteriorly; congested and heavy at bases. The right lung particularly presents at the lower part of the upper lobe a most intense congestion. Much blood and serum oozes from the cut surface. Similar intense engorgement in the lower lobe. The bronchi contain a frothy mucus.

Spleen measures 13 by 8 cm., is extremely soft, almost diffluent and of a dirty brown hue. Liver large, slate gray in color; on section the substance is firm and has a uniform bronze or slaty tinge. The outlines of the lobules are not very well marked. Glisson's sheath is everywhere deeply pigmented. The smaller bile ducts in the portal canals are dilated. Kidneys large, swollen, and surface somewhat mottled. On section the substance is firm;

cortex and pyramids have normal proportion and Malpigian tufts are deeply congested. The medullary rays are pale, and between them run lines of congested vessels. Stomach presents a normal looking mucosa about pylorus. On the anterior surface, near the lesser curvature, are the scars of two ulcers. On the posterior wall are three other flat cicatrices. The small and large intestines show no special alterations.

Brain.—Dura presents on its surface, far back on the right side a small hemorrhage. On the middle of the first right frontal convolution, there is on the pia, an area of blackish brown pigmentation about one cm. in extent. No other areas seen; no special changes in the grey cortex.

Microscopic Examination.—Liver sections show pigment of two sorts: *a.* Yellow irregular granules inside the liver cells. *b.* Black pigment grains which are arranged chiefly about the capillaries between the cords of liver cells. The latter are very abundant and exist chiefly at the periphery of the lobules about the portal canals. This pigment is very closely arranged.

Spleen.—The pigment granules are small, mostly free; only a moderate number of cells contain red blood corpuscles. Some of the red blood corpuscles contained pigmented plasmodia. The kidneys show swelling and extreme granular change in epithelium of convoluted tubules. The glomeruli are full. No special proliferation of epithelium of capsule or of tuft. Pigment was present as yellow brown granules in the tubules and as deep black granules scattered here and there in the intertubular tissues and in the glomeruli.

Case II.—Lewis K., admitted July 18, 1889, complaining of pains in the head and of coldness and numbness of the feet and hands. He has enjoyed fairly good health and for his age is a vigorous, healthy looking man. On the 9th, while picking berries in a field in Anne Arundel Co., he had a heat stroke; was unconscious for two hours and had to be carried home. He was up the next day and was able to work; has not felt well since and has had headache and occasional feelings of sensation of cold.

On the 18th, the following note was made: Healthy looking, much sunburnt, pulse full, vessel-walls soft, no œdema of feet. The lungs are clear in front and behind; respiration is a little prolonged. The apex beat of heart is neither visible nor palpable; the sounds are weak, the second is scarcely audible at base. The area of liver dullness is reduced. The spleen not enlarged; the urine is light yellow in color, specific gravity 110; no albumen or casts.

I saw the patient only during the first four days of his stay at the Hospital and thought that he was suffering from the effects of a sun-stroke. He was given a tonic mixture. The patient's temperature was normal, but on the 20th and 21st the morning record was 97.6° and 97.8°.

On the 25th at 11.30 he had a chill, and the temperature rose to 105° and remained high all afternoon. At 7.30 p. m. it was again 105°, and he had a graduated bath.

Throughout the 26th the temperature fell, but did not get below 101°; the pulse was rapid and feeble.

On the 27th the temperature at 8 a. m. was 100.5°; rose in the afternoon to 103°, and in the evening was 100.3°; pulse 104, extremely irregular and intermittent. There were feeble râles, with a high pitched percussion note in right infra-scapular region. Towards evening the patient sweated profusely and the breathing was of the Cheyne-Stokes type.

On the 28th the temperature fell rapidly, sinking from 103° at 4 p. m. of the 27th to 97.3° at 8 a. m. of the 28th, and to 95.5° at 10 a. m. The pulse is extremely feeble and irregular. He vomited twice; no expectoration. There was marked feebleness of breathing at the right base. Throughout the afternoon of the 28th the temperature rose, and at 8 p. m. was 100°.

29th. Cheyne-Stokes respiration persists; has had slight diarrhœa. He speaks with difficulty, but appears to be conscious.

Throughout the 30th and August 1st he gradually sank and died on the morning of the 2d.

I did not see this patient from the date of his chill until the morning of the 2d, just before his death. The case was regarded as one of low anomalous pneumonia. The day after the chill it is stated in the note that the blood was examined with negative results; but there is no initial to indicate by whom the examination was made.

Autopsy (by Professor Welch).—Anatomical diagnosis. Malarial fever with malarial parasites in blood and spleen. Soft, swollen, pigmented spleen; pigmented and myristicated liver; pulmonary emphysema; general mucopurulent bronchitis; pulmonary œdema; catarrhal colitis. Peritoneum presents spots of fibrous thickening on mesenteric and pigmented patches on peritoneum in pelvis.

Heart small, of a deep brown color; slight thickening of aortic mitral valves. Lungs markedly emphysematous and much carbonized. Dependent parts congested, and there is moderate general œdema. Large and small bronchi contain much muco-pus which can be squeezed out of all the tubes. The pulmonary parenchyma everywhere contains air. There is no pneumonia.

Spleen.—Length 13 cm.; width 8 cm. Capsule thickened; pulp soft, almost diffluent; color dark blackish-brown. Kidneys present no special changes. Liver weighs 51 ounces; prevailing color on section bronze or brown. Centres of acini of a reddish-brown; periphery of a lighter brown color. The large intestines present much stringy, tenacious mucus, closely adherent to the mucosa.

The following note of the microscopic examination was appended to the post-mortem report by Dr. Welch: "Blood from the finger shows in small numbers malarial organisms, namely, spots of the shape and size of the red blood corpuscles with pigmented plasmodia, free round pigmented corpuscles, varying in size from blood plates to twice that size and pigmented crescents, the pigments in a ring in the middle. I found in one specimen of spleenic pulp two actively free flagella. In the capillaries of the brain are a few pigmented corpuscles."

Case of Ruptured Right Tubal Pregnancy.—Dr. Robb.

[See *Bulletin* for October-November, page 137.]

Specimen of Cancer of Pylorus.—Dr. Thayer.

Dr. Thayer exhibited a specimen of cancer of the pylorus and said:

The specimen which I have this evening comes from a patient who entered the Hospital on the 19th of September. He was a colored man, 40 years of age, a coachman. The family history had no particular bearing upon his complaint at that time. He said that he had had occasional "bilious attacks." In these attacks he would vomit considerably, but he never vomited blood. A clear history was not easily obtained, but the trouble of which he then complained dated two or three weeks back, since when he had been troubled by continual vomiting. The vomiting was not due to any particular pain, though he complained at times of a "rolling, grumbling pain" in the epigastric region. The appetite had been poor, and the bowels constipated. On entrance to the Hospital the patient was found to be fairly well nourished, the mucous membranes of a fairly good color. Nothing abnormal was discovered on examination of the thorax. The abdomen was somewhat retracted. Hepatic flatness began at the lower border of the sixth rib, border not palpable. The spleen was not palpable. In the right hypochondrium just to the right of the median line a body about the size of an English walnut was felt to descend on inspiration, returning on expiration to a point under the end of the eighth cartilage. The mass was freely movable. The note reads: "This body gives one the impression of being at the pylorus." There were no glandular enlargements.

The urine on entrance was of a normal color, acid, specific gravity 1017, no albumen, no sugar, no diazo reaction. The sediment contained cylindroids, amorphous urates, occasional leucocytes and epithelial cells. The patient remained in the Hospital until the 29th of September.

For the first several days all food was rejected, the patient vomiting continuously a green, bile-stained fluid. Attempts were made to give a test breakfast, in order to examine the contents of the stomach, but the patient was refractory and refused to eat the bread. On the 22nd he was ordered four nutrient enemata, each to contain two eggs and four ounces of milk, four times a day, and all food by the mouth was withheld. He was allowed, however, to suck ice and drink a little water, but the vomiting, though somewhat diminished, still continued. Later on he was allowed small quantities of liquids by the mouth, but vomiting several times a day persisted. The patient became markedly weaker and more emaciated under observation. On the 28th the examination of the blood showed: Red corpuscles, 6,605,000; colorless corpuscles, 16,000; hæmoglobin, 103 per cent. The dried specimens showed nothing remarkable. The corpuscles were of normal shape and appearance. The moderate leucocytosis consisted of an increase in the poly-nuclear neutrophiles. No nucleated red blood corpuscles were to be seen. On the 29th the patient was discharged at his own request. A diagnosis of cancer of the pylorus was made notwithstanding the remarkable condition of the blood. No attempts were made to

inflate the stomach, owing to the extremely nervous condition of the patient. After being taken home he rapidly failed and died two days ago. The autopsy, which I made yesterday at his home, showed a fairly well developed man, considerably emaciated. The pericardium and heart showed nothing abnormal. The pleuræ and lungs, beyond some old fibrous adhesions, more marked on the right side, were not remarkable. The spleen was small, not more than one-half the size of the normal organ. On section the consistency was normal, follicles and trabeculæ distinct. The liver, kidneys and bladder, and intestinal tract showed nothing remarkable. The stomach was somewhat dilated. At the pylorus a firm diffused thickening was to be felt the size of an English walnut. On introducing the finger from within there appeared to be a distinct stenosis, but the tip of the little finger could be introduced on pressure. On section the tissues at the pylorus offered considerable resistance to the knife and cut with a distinct crackling sound. The muscular coat appeared to be greatly hypertrophied, the mucous and sub-mucous coats were infiltrated with a firm whitish substance which appeared to send arms down into the muscular coat. The mucous membrane was not ulcerated, and over the rest of the stomach appeared normal. Fresh microscopical sections showed the condition to be a scirrhous carcinoma. No lymphatic glands showed any evidences macroscopically of infection. The glands about the portal fissure were small, of normal size and appearance.

The case, I think, is of remarkable interest, owing to the rapidity of the course after the first onset of the symptoms. Cases of this nature, where almost the only symptom is sudden and constant vomiting, are mentioned in literature, but are certainly not frequent. The absence of any evidences whatever of metastasis is also a point of interest in the case. The condition of the blood is particularly striking. The blood in cancer of the stomach almost always shows a distinct oligocythæmia associated with a slight leucocytosis and a decided oligochromæmia, the amount of hæmoglobin being relatively much more diminished than the number of the corpuscles. The presence of nucleated red corpuscles may also be very commonly, if not usually, demonstrated, a point which is often of considerable value in discriminating between obscure cancerous and tuberculous affections, for in the latter anæmia is usually very much less marked, and nucleated red corpuscles are rarely present, while in the former they are usually to be found. The marked increase in both corpuscles and hæmoglobin above the normal standard in this case one may perhaps ascribe to an actual condensation of the blood as a whole, owing to the extremely small quantity of fluid which the patient had been able to take, but from the examination of the dried specimens and from the general appearance of the blood it is scarcely to be supposed that any appreciable diminution in the number of the corpuscles as a whole can have been present, a fact which may have been due to the rapidly fatal course of the disease.

THE JOHNS HOPKINS HISTORICAL CLUB.

Meeting of October 12th, 1891.

29 members present.

Dr. HURD was elected President for the ensuing year. Dr. FINNEY was elected Secretary.

Nathan Smith, M. D., Treatment of Typhous Fever.—Dr. OSLER.

Dr. Osler gave a sketch of Dr. Nathan Smith of New Haven, Conn., and read extracts from his work on the treatment of typhous (now typhoid) fever.

Mme. Lachapelle, Midwife.—Dr. ROBB.

The important part played in the obstetrical world by some of the celebrated midwives of the past is not generally and sufficiently appreciated, the subject being too often dismissed as trivial, and judged from the standpoint of the degenerated midwife of to-day.

It is impossible to read the memoirs of such noted midwives as Lachapelle, Boivin, Burgeois and Siegmundin without realizing the importance of their work, and respecting their opinions, based upon an enormous practical experience scarcely equalled since their day.

I have recently refreshed my memory by reading the memoirs of Mme. Lachapelle, which appeared in three volumes, now somewhat rare, edited by her nephew, Ant. Dugès, Doctor in the Faculty of Medicine of Paris, and Professor in the Faculty of Medicine of Montpellier, published in Paris by T. B. Baillière, 1825.

The title of the book is: "Pratique des Accouchemens, ou Mémoires et Observations Choisies, sur les points les plus importans de l'Art; Par Mme. Lachapelle, sage-femme en chef de la maison d'accouchement de Paris."

In the introductory chapter she speaks of the superior advantages now enjoyed in the new hospital, the "Maison d'accouchement," over the contracted apartments of the old Hotel Dieu, where she had studied obstetrics with her mother, Madame Dugès, the midwife-in-chief for twenty-five years. She then speaks of the admirable course of practical instruction arranged for the training of young midwives. The importance of an Infirmerie for cases affected by peritonitis is dwelt upon (page 5, vol. 1), and the melancholy admission made: "La péritonite règne trop souvent dans nos salles."

The books are divided into a series of memoirs, the first of which is devoted to the position of the fœtus. She here courageously and ably attacks Baudelocque's classification into 94 presentations of the fœtus, hinting that this was adopted partially out of deference to Solayrès, and afterwards maintained from the pride of having taught it so many years. She denounces it as utterly impractical, and purely theoretical, for out of the whole 94, in a practice of thirty years, she herself had met with but 22, and she had never seen a presentation of the neck or trunk.

On page 23 follows an excellent classification of these presentations into their genera, vertex, buttocks, feet, knees, face, right and left shoulder, and species (simple and cardinal) such as occiput to the right, left, etc., buttocks to the right, left, etc., and finally varieties or intermediates, imperfect, and inclined positions.

In speaking of diagnosis she gives many interesting suggestions, remarking for example, "I had always had a bad opinion of a protuberant conical belly, or one very high up in the epigastrium, and rarely has my expectation been deceived. I then have seen the head rest immobile at the superior strait, or the presentation of an unfavorable part." In speaking of artificial dilatation of the parts, she says it is not proper (as the obstetricians and midwives were wont to do) to distend and pull at the orifice of the vagina and vulva. Scientific men at all times have recognized the dangers of such manœuvres, and she quotes from Guillemeau as saying, "above all in this art, says one of the most ancient writers, the midwife will take good care neither to precipitate nor hasten anything, avoiding enlarging the passage for the child by force." This forced dilatation, she says, I have never sought to produce.

On page 59 instruments for the diminution of the volume of the head are spoken of. "La perce-crâne" usually serves to prepare the way for the crochet, or extraction by the forceps, or version.

On page 60 she tells us that the lever, which enjoyed such fame in the hands of Roonhuisen, has fallen into great disfavor, while the forceps enjoy a well-merited reputation.

On page 143 she gives a description of a typical case of normal labor, which is a model of clear accurate depiction.

In summing up 2395 labors occurring during her supervision in 1811, she gives the average duration as two and three hours in 257 cases each, and four hours in 329 cases, six hours in 317 cases, and so on down. The weight of the greatest number of children is six pounds, after that seven, and then five. Thirteen weighed ten pounds, but none exceeded that limit.

At the close of the first volume, Mme. Lachapelle presents a valuable and instructive table classifying the character of the labor, and the artificial aid given in 15,652 cases, giving also, in every case the condition of the fœtus, whether living, dead or decayed.

She interfered in 1.73 per cent. of the cases; 15,380 cases terminated spontaneously. Forceps were used but 93 times, version 155 times. Symphysiotomy was still alive, for we find that it was done in two cases where the pelves were 2½ and 2 inches in diameter respectively. The first child died shortly after delivery; the second died with the mother. There was one Cæsarean section in a pelvis 1½ inches in diameter; the mother died the day after delivery; the child lived.

Of 15,380 spontaneous labors, 86 children were dead born; 522 putrified. This would give a mortality of 1.71 per cent.

The second volume appeared three years after the first; that is, in 1824. This is preceded by a historical notice on the life and the writings of Madame Lachapelle by Professor Chaussier, delivered at the l'École d'Accouchement in 1822. He tells us how actively she interested herself

in establishing the new quarters for parturient women, of which she was the first directress in the "Maternity Hospital."

It is difficult for us now to realize the extraordinary conditions which prevailed in the hospitals of Paris previous to 1793. Pregnant women had no other accommodation than beds in the Hotel Dieu, over the unhealthy surgical ward, in a room too small for the number of the occupants, who, the report says were piled up pell mell—several even confined in one bed—often in the midst of the most disastrous epidemics. On the other hand, the children were taken to the hospital, the l'Hopital des Enfans-trouvés (Foundling Hospital), where they perished in great numbers from excessive crowding, as well as from the cold damp dark quarters. Another of the changes brought about through Mme. Lachapelle's agency was the extension of the time of pupilage for young midwives, from three months to one year. Mme. Lachapelle used to lecture to the scholars two or three times daily in the amphitheatre. Her lucid pointed earnest style of delivery is particularly dwelt upon by Prof. Chaussier.

Baudelocque, who was associated with her as professor to the institution, was her warm admirer, and frequently applauded her great skill in terminating difficult cases.

Madame Lachapelle was born 1769, died October 4, 1822, aged 53 years.

Madame Le Grande, one of her scholars, was appointed to fill her place.

A large portion of the second volume is devoted to illustrative cases, describing labor in the various presentations of the fœtus. The latter part of the volume treats voluminously of uterine hæmorrhage and abortion.

The third volume opens up with a discussion of puerperal eclampsia and puerperal fever, which excited such universal interest at that time on account of the frightful mortality in maternity hospitals the world over; rupture of the uterus, rupture of the vagina, and extra-uterine pregnancy are next considered. Following this is a careful consideration of obstetrics, of delivery in the soft parts and in the bony pelvis. Finally comes the consideration of premature labor, the use of the forceps, craniotomy, symphysiotomy, and Cæsarean section.

In volume 3, pages 438–442, she discusses symphysiotomy, or "La section de la symphyse pubienne" She presents first a historical review of the operation and speak of its advocacy by some prominent operators of that time. She says that the success of the operation was much exaggerated, and describes a case attended by one of her relatives, Madame Bellami, who had delivered a woman without any difficulty, this patient being one of the first on whom Sigault had operated. Tearing of the symphysis and sacro-iliac articulations, followed by the formation of fatal abscesses and the crushing of the head of the fœtus, these had been the dismal results of this inconsiderate endeavor. In those cases where the operation had not been immediately fatal, the same results were obtained, in later deliveries, by the simple application of the forceps or by ordinary version. She describes the indications for performing the operation, and the advantages that are supposed to be gained by it, but says that she herself has never practised it. She has never had a case in which she considered it necessary, and in some cases in which it might seem to be indicated, she has been able to successfully terminate the labor by other methods.

In criticising the operation of Cæsarean section, she says from the fatality of the cases, that it is not one which she would advise, and that it should not be performed unless in a case of absolute necessity, and also it should not be done except the child be living. She says that the pelvis should not be larger than 2¼ inches in the small diameter. At this period there was much opposition to this operation. It was entirely rejected by such men as Paré, Guillemeau, Mauriceau, Peu, Dionis, Manningham, Ould, Simons, Stein, and others of less repute.

It is difficult at this distant day, in view of the strong prevailing impression of the wonderful achievements of the last decade, to realise without a minute examination of such a work as this, the marvellous talents of a woman like Madame Lachappelle. There is one thing above all others which has built up the whole realm of obstetrics as a science, and that is, the discovery of the infectious nature of puerperal febrile diseases. To this key we owe our success, and with this key in their possession what work would our predecessors not have been able to accomplish? It is here that we notice the lamentable deficiency in works of this date.

She consulted the following list of authors in writing her book: Guillemeau, Mauriceau, Petit, Portal, Dionis, Smellie, Burton, Delamotte, Viardel, Roederer, Parè, Baudelocque, Hippocrates, Celsius, Rhodion, Solayrès, Levret, Saviard, Puzos, Peu, Gardien, Mesnard, Deventer, Sigault, Lauverjat, Dubois and many others.

Israel Spachius's Gynecology.—Dr. KELLY.

Dr. Kelly presented, as a fitting nucleus for the prospective Gynecological Library, a copy of the work of Israel Spachius, printed at Strassburg, 1597. Spachius was born in Strassburg in 1550, studied medicine at Tuebingen, returned to Strassburg where he was made Professor, and died 1610, 60 years old. The title of his work is "Gynecology, or the Diseases of the Pregnant, of Woman in Labor and in the Puerperal State, collected from the Works of the Greeks, Arabs and Romans." This book is peculiarly interesting as one of the earliest special works, and as being the largest old collective work. Spachius presents no original views of his own, but contents himself with collating the works of his predecessors; he has in this way preserved for us many writings which to-day are exceedingly rare in the original editions. The work is not in any sense a curio or a rarity, nor is it interesting for its strange views and superstitions; it actually contains much of value, much in common with the teaching of to-day; it is therefore of great importance to the historical student.

I find very properly at the beginning the anatomy of the female genitals by Felix Plater, a distinguished pupil of Vesalius, a fact readily recognized from the anatomical plates. Plater's description of the female testes and the vas deferens of the female recalls the long prevailing ancient view of conception as being the result of the fusion of the menstrual with the seminal fluid, the ovaries were therefore called the female "testes," from which the fluid was conducted by the "*vas deferens*" (Fallopian tube) to the uterus.

The works of Cleopatra, Trotula, Rueff, Paré and Guillemeau, and Baunin's Latin edition of Rousset's Cæsarean section are all here, together with a long critique of the works of Hippocrates. The Lithopædion Senonence is figured on page 479 with the following epigrammatic inscription:

"Finxit Deucalion saxis post terga repulsis
Ex duro nostrum marmore molle genus:
Qui fit ut infantis, mutatâ sorte, tenellum
Nunc corpus saxis proxima membra gerat!
Flectebat Priscos divina potentia mores,
Nostra ferunt nullum nunc fera colla jugum."

HOSPITAL JOURNAL CLUB.

Meeting of October 26th, 1891, at 8 p. m. Eleven members present.

Dr. Nuttall was elected to succeed Dr. Abbott as President of the Society. It was unanimously voted that the thanks of the Society be tendered to Dr. Abbott for his services during the past two years.

Reports were made as follows:

"On the Origin and Life History of Leucocytes." *G. Lovell Gulland.* (*Trans. Royal Coll. Physicians*, Edinb., 1891.) Dr. THAYER.

"Ueber Chylangioma Cavernosum." *Alfred Kruse.* (Virchow's *Archiv*, Vol. CXXV, p. 488.) Dr. FLEXNER.

"Ueber eine eigenthümliche Form von periodischer, familiärer, wahrscheinlich autointoxitorischer Paralyse." *S. Goldflam* (*Warschau*). (*Zeitschr. f. Klin. Med*, Vol. IX, Suppl't Heft, 1891.) Dr. HOCH.

"The Treatment of Pelvic Suppuration by vaginal Hysterectomy." *Pozzi.* (*Gaz. Hebd. de Med. et de Chir.*, 1891.) Dr. RUSSELL.

"A Case of Vaginitis with gas cysts: so-called Emphysematous Vaginitis." *Herman.* (*Lancet*, June 6, 1891.) Dr. RUSSELL.

"Versuche über Immunisirung und Heilung bei der Pneumokokkeninfection." *Klemperer, G. & F.* (*Berl. Klin. Wochenschr.*, Jahrg. 28, No. 34–35, Aug. 24, 1891.) Dr. NUTTALL.

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